

### **AMENDMENTS TO THE CLAIMS**

Applicant submits below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims will replace all prior versions, and listings, of claims in the application:

1-95. (Canceled).

96. (Previously Presented) A method of designing a software system, comprising:  
defining a set of functional requirements that describe what the software system is to achieve;

defining a set of design parameters, where each design parameter in the set satisfies at least one of the functional requirements;

decomposing the set of functional requirements and design parameters to create a hierarchy of functional requirements and a hierarchy of design parameters, wherein at least one functional requirement of the set of functional requirements is a parent functional requirement at a first level in the hierarchy of functional requirements and is decomposed into at least two child functional requirements at a second level in the hierarchy that is below the first level, and wherein the at least two child functional requirements collectively accomplish the parent functional requirement;

defining a design matrix that maps each design parameter in the hierarchy of design parameters to the at least one functional requirement in the hierarchy of functional requirements that the respective design parameter satisfies; and

using the design matrix to define an object-oriented structure of the software system, wherein at least one functional requirement in the hierarchy of functional requirements represents a software object of the software system, and wherein at least one design parameter in the hierarchy of design parameters represents an input to the software object.

97. (Previously Presented) The method of claim 96, wherein a product of at least one element of the design matrix and the at least one design parameter represents an operation performed by the software object.

98. (Currently Amended) The method of claim 96, wherein the act of defining the set of ~~define~~ design parameters further comprises determining the set of design parameters by mapping the set of functional requirements into a physical implementation domain.

99. (Previously Presented) The method of claim 96, further comprising an act of determining if the design matrix is decoupled.

100. (Previously Presented) The method of claim 99, further comprising an act of, when it is determined that the design matrix is not decoupled, manipulating the design matrix into lower triangular form.

101. (Previously Presented) The method of claim 96, wherein the at least one functional requirement that represents a software object includes at least two functional requirements, and wherein a first of the at least two functional requirements represents a first software object and a second of the at least two functional requirements represents a second software object.

102. (Previously Presented) The method of claim 101, further comprising defining a relationship between the first software object and the second software object using a junction.

103. (Previously Presented) The method of claim 102, further comprising defining a third software object by combining the first software object and the second software object according to a type of the junction.

104. (Previously Presented) The method of claim 103, wherein the type of the junction is one of: a summation junction; a control junction; or a feedback junction.

105. (Currently Amended) At least one computer readable medium encoded with instructions that, when executed on a computer system, perform a method of allowing a user to define a software system, the method comprising:

- allowing the user to ~~defined~~ define a set of functional requirements that describe what the software system is to achieve;

- allowing the user to define a set of design parameters, where each design parameter in the set satisfies at least one of the functional requirements;

- allowing the user to decompose the set of functional requirements and design parameters to create a hierarchy of functional requirements and a hierarchy of design parameters, wherein at least one functional requirement of the set of functional requirements is a parent functional requirement at a first level in the hierarchy of functional requirements and is capable of being decomposed into at least two child functional requirements at a second level in the hierarchy that is below the first level, and wherein the at least two child functional requirements collectively accomplish the parent functional requirement;

- allowing the user to define a design matrix that maps each design parameter in the hierarchy of design parameters to the at least one functional requirement in the hierarchy of functional requirements that the respective design parameter satisfies; and

- using the design matrix to define an object-oriented structure of the software system, wherein at least one functional requirement in the hierarchy of functional requirements represents a software object of the software system, and wherein at least one design parameter in the hierarchy of design parameters represents an input to the software object.

106. (Previously Presented) The at least one computer readable medium of claim 105, wherein a product of at least one element of the design matrix and the at least one design parameter represents an operation performed by the software object.

107. (Previously Presented) The at least one computer readable medium of claim 105, wherein the act of allowing the user to define the set of design parameters further comprises

allowing the user to map the set of functional requirements into a physical implementation domain to determine the set of design parameters.

108. (Previously Presented) The at least one computer readable medium of claim 105, wherein the method further comprises an act of determining if the design matrix is decoupled.

109. (Previously Presented) The at least one computer readable medium of claim 108, wherein the method further comprises an act of, when it is determined that the design matrix is not decoupled, allowing the user to manipulate the design matrix into lower triangular form.

110. (Previously Presented) The at least one computer readable medium of claim 105, wherein the at least one functional requirement that represents a software object includes at least two functional requirements, and wherein a first of the at least two functional requirements represents a first software object and a second of the at least two functional requirements represents a second software object.

111. (Previously Presented) The at least one computer readable medium of claim 110, wherein the method further comprises an act of allowing the user to define a relationship between the first software object and the second software object using a junction.

112. (Previously Presented) The at least one computer readable medium of claim 111, wherein the method further comprises defining a third software object by combining the first software object and the second software object according to a type of the junction.

113. (Previously Presented) The at least one computer readable medium of claim 112, wherein the type of the junction is one of: a summation junction; a control junction; or a feedback junction.